FACT SHEET

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Battery Management

Batteries are an essential part of everyday life, powering military, private, and industrial equipment worldwide. A battery is an electric cell consisting of an anode, cathode, and electrolyte in which an electro-chemical process converts chemical energy into electric energy. The exact chemical constituents of a battery influence the requirements for final disposition. The individual battery manufacturer's material safety data sheet should always be reviewed for specific environmental and health hazards. There are two major battery types: single-use and rechargeable.

Single-Use Batteries

Single-use, also known as primary, batteries are the most common type of consumer batteries. Most single-use batteries are alkaline or carbon-zinc and include AAA, AA, C, D, 9V, and button cells.

Battery Type Includes:

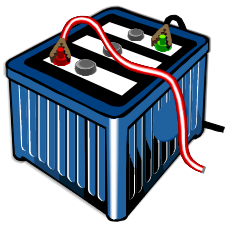
- ✓ Alkaline
- ✓ Carbon-Zinc
- ✓ Lithium
- ✓ Zinc-Air
- ✓ Silver
- ✓ Mercuric Oxic

Rechargeable Batteries

Rechargeable, also known as secondary, batteries are batteries that can be used repeatedly. Despite being more expensive than single-use batteries, the demand for rechargeable batteries has grown significantly throughout recent years due to long-term cost savings and environmental benefits.

Battery Type Includes:

- ✓ Nickel-Cadmium (Ni-Cd)
- ✓ Nickel Metal Hydride (Ni-MH)
- ✓ Lithium-Ion
- ✓ Lead Acid and Small Sealed Lead-Acid
- ✓ Rechargeable Alkaline
- ✓ Zinc-Air



Battery Disposition

The overall life expectancy of a battery is influenced by its cell design, electro-chemical process, and storage conditions; and once depleted must be disposed of properly. Since batteries often contain heavy metals and release toxic hazards into the environment, the generator of the waste must make a determination as to whether the solid waste is a hazardous waste governed under the Resource Conservation and Recovery Act (RCRA). Note: Batteries (except lead-acid batteries) are not specifically regulated under RCRA regulations.

In 1995, the Environmental Protection Agency promulgated the Universal Waste Rule, which was established to improve waste management practices of widely generated hazardous wastes. The Universal Waste Rule does not apply in all states. However, in 1996, the Mercury-Containing and Rechargeable Battery Management Act (Battery Act) was signed into law (Public Law 104-142) providing for the efficient and cost-effective collection and recycling of Ni-Cd, certain small sealed lead-acid (SSLA) batteries, and other rechargeable batteries; and phase out the use of mercury-containing batteries.

The Battery Act mandates that batteries covered by the act, be managed in accordance with standards established in the Universal Waste Rule regardless of whether or not other portions of the rule have been adopted. The purpose of this action was to create a consistent program for collection, accumulation, and transportation of batteries nationwide.

Currently, all kinds/types of batteries are covered under the universal waste regulations allowing for streamlined management practices and relief from the full regulatory aspects of RCRA. The only batteries exempt from universal waste regulations are lead-acid batteries when managed under Title 40 Code of Federal Regulations Part 266, Subpart G, "Spent Lead-Acid Batteries Being Reclaimed."

Battery Recycling

Many batteries can be recycled rather than disposed of as either a solid or hazardous waste,

thereby eliminating potential risks associated with landfilling and/or incinerating. Under RCRA, batteries characterized as hazardous waste are exempt if recycled by shipping to a battery recycling company, returning the battery to the manufacturer for regeneration, or if precious metals are reclaimed from the battery.

The following is a partial listing of battery recycling companies; please note appearance in the list does not imply endorsement by the U.S. Air Force.

· *Rechargeable Battery Recycling Corporation (RBRC): (800) 822-8834 or* http://www.rbrc.org/
· *Battery Solutions, Incorporated: (734) 467-9110 or* http://www.batteryrecycling.com/
· *International Metals Reclamation Company (Inmetco): (724) 758-2800 or* http://www.inmetco.com/batt.htm
· *Full Circle, Incorporated: (800) 775-1516 or* http://www.fcballast.com/services.htm

Additional Information

Additional assistance can be obtained by contacting PRO-ACT at DSN 240-4240, (800) 233-4356, or by e-mail at pro-act@brooks.af.mil.

Websites

· *Batteries, Industrial and Special Wastes, Office of Solid Waste, EPA,* http://www.epa.gov/epaoswer/osw/special.htm
· *Batteries, Chapter 21, Environmental Compliance for the Defense Reutilization Marketing Service (DRMS) Hazardous Property Program,* http://www.drms.dla.mil/publications/html/drms-i_6050.1.html
· *Reduce, Recharge, Recycle! Preventing Waste from Batteries, INFORM Inc.,* http://www.informinc.org
· *Battery Council International,* http://www.batterycouncil.org/index.html

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